



# Freight Transportation Profile—Arizona

## Freight Analysis Framework

Understanding future freight activity is important for matching infrastructure supply to demand and for assessing potential investment and operational strategies. To help decisionmakers identify areas in need of capacity improvements, the U.S. Department of Transportation developed the Freight Analysis Framework (FAF), a comprehensive national data and analysis tool, including county-to-county freight flows for the truck, rail, water, and air modes. FAF also forecasts freight activity in 2010 and 2020 for each of these modes. Information about the methodology used in developing FAF is available on the Office of Freight Management and Operations' website [www.ops.fhwa.dot.gov/freight](http://www.ops.fhwa.dot.gov/freight).

The U.S. freight transportation network moves a staggering volume of goods each year. Over 15 billion tons of goods, worth over \$9 trillion, were moved in 1998. The movement of bulk goods, such as grains, coal, and ores, still comprises a large share of the tonnage moved on the U.S. freight network. However, lighter and more valuable goods, such as computers and office equipment, now make up an increasing proportion of what is moved. FAF estimates that trucks carried about 71 percent of the total tonnage and 80 percent of the total value of U.S. shipments in 1998. By 2020, the U.S. transportation system is expected to handle about 23 billion tons of cargo valued at nearly \$30 trillion.

### Arizona

Table 1 presents information on freight shipments that have either an origin or a destination in Arizona. As shown in the table, trucks moved a large percentage of the tonnage and value of shipments, followed by rail (tonnage) and air (value). Figures 1 and 2 show freight flows on the highway and rail modes.

Truck traffic is expected to grow throughout the state over the next 20 years. Much of the growth will occur in urban areas and on the Interstate highway system (Figures 3 and 4). Truck traffic moving to and from Arizona accounted for 11 percent of the average annual daily truck traffic (AADTT) on the FAF road network. Approximately 7 percent of truck traffic involved in-state shipments, and 26 percent involved trucks traveling across the state to other markets. Nearly 56 percent of the AADTT were not identified with a route-specific origin or destination.

Table 2 shows the top five commodity groups shipped to, from, and within Arizona by all modes. The top commodities by weight are clay, concrete, glass, or stone and petroleum or coal products. By value, the top commodities are transportation equipment and secondary traffic. Secondary traffic is defined as freight flows to and from distribution centers or through intermodal facilities. No commodities are assigned to this intermediate step in the transportation process.

**Table 1. Freight Shipments To, From, and Within Arizona: 1998, 2010, and 2020**

ARIZONA	Tons (millions)			Value (billions \$)		
	1998	2010	2020	1998	2010	2020
<b>State Total</b>	182	292	396	147	343	616
<b>By Mode</b>						
Air	<1	<1	2	27	75	139
Highway	151	249	341	110	249	445
Other <sup>a</sup>	<1	<1	<1	<1	<1	<1
Rail	30	43	53	10	20	32
Water	0	0	0	0	0	0
<b>By Destination/Market</b>						
Domestic	169	266	357	131	294	521
International	12	26	39	16	49	95

Note: Modal numbers may not add to totals due to rounding.

<sup>a</sup> The "Other" category includes international shipments that moved via pipeline or by an unspecified mode.

**Figure 1. Freight Flows To, From, and Within Arizona by Truck: 1998 (tons)**



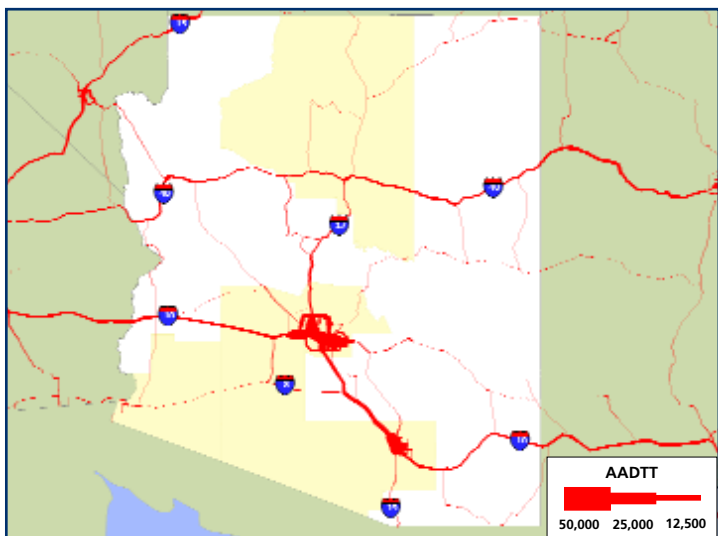
Federal Highway Administration

**Figure 2. Freight Flows To, From, and Within Arizona by Rail: 1998 (tons)**



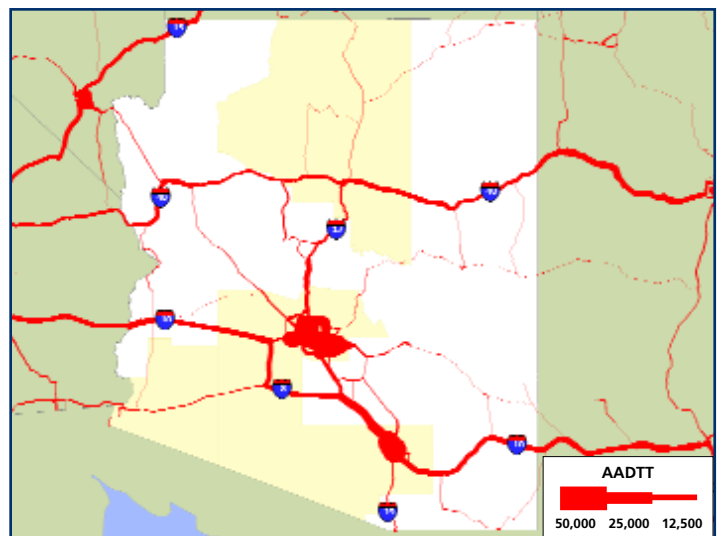
Federal Railroad Administration

**Figure 3. Estimated Average Annual Daily Truck Traffic: 1998**



Federal Highway Administration

**Figure 4. Estimated Average Annual Daily Truck Traffic: 2020**



Federal Highway Administration

**Table 2. Top Five Commodities Shipped To, From, and Within Arizona by All Modes: 1998 and 2020**

Commodity	Tons (millions)		Commodity	Value (billions \$)	
	1998	2020		1998	2020
Clay/Concrete/Glass/Stone	27	74	Transportation Equipment	20	55
Petroleum/Coal Products	26	50	Secondary Traffic	20	92
Nonmetallic Minerals	24	38	Machinery	12	75
Secondary Traffic	20	60	Food/Kindred Products	11	47
Farm Products	19	30	Chemicals/Allied Products	11	41

#### For More Information, Please Contact

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A series of FAF products are available on the website noted below. FAF outputs include freight flow maps for states, modes, and gateways; detailed databases on traffic flows and commodity movements; information on the methodologies used to develop FAF; and forecast assumptions.

The U.S. Department of Transportation, Bureau of Transportation Statistics (BTS) is also developing a series of state transportation profiles. For more information and to obtain a copy of the BTS reports, please call 202-366-DATA.



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